Exploration on the Teaching Mode of Resource and Environmental Economics for Graduate Students Based on the Teaching Mode of Blended Course

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Keywords: Blended Course, Teaching Model, Master of Public Administration

Abstract. Unlike undergraduate education, postgraduate education pays more attention to cultivate the comprehensive quality and application ability of students. When design the teaching course, we need to add a large number of frontier contents. Resource and Environmental Economics is a course of highly practical interdisciplinary, it requires students to grasp a large number of basic economic knowledge. In order to analyze and solve the problems of resources and environment, it also requires students to master the economics principles. Blended course teaching mode divides the curriculum content into three parts: pre-class, in-class and after-class. According to different goals and contents, teachers will complete the teaching process separately. These processes will fully mobilize the enthusiasm and initiative of students’ self-studying. And these will truly realize the inquiry learning process with student-oriented.

1. Introduction

Postgraduate education belongs to higher education in the national education sequence. It is a form of education for the college graduate students to continue their further study. Different with undergraduate education, postgraduate education emphasizes that postgraduates should get a firm grasp of basic theories and systematic specialized knowledge in the discipline concerned, and have the ability to engage in scientific research, teaching or independently to undertake specialized technical work. As an important part of graduate education and training, curriculum learning is a necessary link to ensure the quality of graduate education. How to fully reflect the training objectives and orientation of postgraduates in the course learning is an important part of the postgraduate curriculum system design.

Resource and Environmental Economics is an interdisciplinary optional course for academic master of public administration students in Inner Mongolia University of Technology. It is a follow-up course in the series courses of Economics. It takes 32 hours and 2 credits. It is offered in the spring semester of the graduate course. The main purpose of this course is to train students to apply the economics theories to study the exploitation and protection of natural resources and ways to achieve environment sustainable development. This course is formed by the intersection of economics and resource and environment science, so it plays an important role in cultivating interdisciplinary innovative thinking of graduate students.

2. Resource and Environmental Economics Reform Background

In the 21st century, the rapid development of digital information technology with the Internet as the carrier has led to continuous innovation and integration of digital manufacturing technology, Internet technology and renewable energy technology. Such industrial and technological innovation and integrated development require us to adapt and adapt to this trend in education field, and make corresponding changes accordingly.
2.1 From Teaching Objectives

Resource and Environmental Economics is a so closely integrated and practical course, students need to master in addition to the early to a lot of basic knowledge of economics also needs to practice a lot of resource utilization and environmental problems have in-depth understanding, a simple classroom theoretical interpretation cannot meet the needs of improving students‘ ability to solve practical problems.

In addition, postgraduate teaching is different from undergraduate teaching, and the number of electives is relatively small, which requires higher teaching effect and acceptance of students in classroom teaching. It is difficult to achieve good classroom effect through the pure "You talk I learn " model and need mobilize students' participation and enthusiasm in class.

At the same time, the graduate student curriculum teaching goal focused on training students understanding, the ability of analysis and the integrated use of multidisciplinary knowledge, because of its training goal and the significant differences of undergraduate course teaching more requires teachers in teaching activities can not simply on the basis of the interpretation of content, the need to strengthen the comprehensive knowledge and interdisciplinary content such as in-depth analysis.

2.2 From Teaching Content

Resource and Environmental Economics is an interdisciplinary course, which covers two major contents, that is economic theory and resource and environmental theory. Therefore, the content of the two parts needs to be integrated organically in the teaching process.

As the course is taught to students of public management and the courses related to economics have been completed, it is not necessary to conduct in-depth explanation and analysis of relevant economic theories in the course of course design, but should focus on the relevant content of environmental science. However, due to the differences in undergraduate study foundation and training programs in different schools, it is found in the teaching process that some students still have a relatively poor foundation after the study of economics courses in the early stage, and their mastery of some relevant theories is still inadequate. Therefore, it is necessary to repeat relevant theories in the subsequent course explanation.

Because of the discipline background, most of the students in the undergraduate stage for management or related disciplines, almost never contact any environment or related discipline knowledge, their theoretical basis was bad, almost completely know nothing about the related concepts and theories, even has considerable error. So, in actual teaching we often need to teach from the basis of the most basic theory.

In addition, this course is an interdisciplinary course, and the application of relevant principles and theories in economics is often interspersed with relevant principles in the field of resources or environment, which is quite different from its application in economics, making it more difficult for students to understand.

All the above situations are reflected in the teaching process. However, due to the limitation of the class hours and teaching contents, it is difficult to reasonably allocate the corresponding class hours to complete the review of economics content and the explanation of basic environmental theory.

2.3 From the Perspective of Teaching Effect

After undergraduate study, the graduate students tend to have strong ability of autonomous learning and the certain scientific research ability. Therefore, in the course design and teaching, teacher should not simply adopt the curriculum design of cramming mass: lot sizing, standardization and conventionalization, instead of taken foster to the innovative and high-quality creative talents with distinct personality, good at cooperation, strong innovation ability and good social adaptability. The course design and teaching should focus on the goal of personalized, customized, differentiation. Through the scattered cooperation methods, teachers mainly focus on cultivating the students' comprehensive quality and creative ability, in order to improve the students' ability to analyze and solve practical problems.
In addition, the interdisciplinary features of this course require students to inquire and understand a lot of relevant knowledge and theories before, during and after class, which further exposes the defects and defects of the traditional teaching mode.

In addition, this course belongs to interdisciplinary courses, and it needs to apply relevant principles and theories of economics to the analysis of problems in environment or resource utilization, etc. However, due to the complexity of resource and environment problems, the application of relevant principles is more complicated than the problems involved in economics.

To sum up the above reasons, only by introducing more effective or unique teaching mode can we effectively solve the above problems and improve the teaching quality and level to some extent.

The teaching mode of blended course is a new mode which is different from the previous flipped classroom and MOOC. The blended course teaching mode is to combine the advantages of traditional learning mode and network learning. It should not only give play to the leading role of teachers in guiding, inspiring and monitoring the teaching process, but also fully reflect students' initiative, enthusiasm and creativity as the subject of the learning process. (fig.1)

![Diagram of Key Points for the Construction of Blended Teaching System](image)

Figure 1. Key Points for the Construction of Blended Teaching System.

The blended teaching model puts forward new requirements for teachers' "teaching" and students' "learning" respectively. Make full use of online and offline resources, the course integrate to three parts of time: before class, in class and after class, make a fundamental adjustment to the traditional teaching mode, fully mobilize the enthusiasm and initiative of students to learn by themselves, and make students become the subject of the class, while the role of the teacher changes to that of a helper or a question-answering.
3. Course Design of the Mixed Curriculum Reform of Resource and Environmental Economics

In blended mode, the teaching activity is not just limited to the class in the telling, but the integrated use of the combination of the three parts before, class and after class, the transition from the basic concept of students in traditional teaching for many years in the learning process is formed by the rigid and boring "teaching and learning" concept, fully mobilize the enthusiasm and initiative of student learning, change passive learning into active learning.

Make full use of the network platform and resources, integrate the content of various subjects and relevant theories, finish a lot of basic review and consolidation work after class, and make full use of the time in class to conduct in-depth discussion and analysis of relevant knowledge points. At the same time, students are encouraged to further understand and discuss relevant contents after class in the form of homework or discussion questions to deepen their memory and mastery.

3.1 Curriculum System

*Resources and Environmental Economics* is an interdisciplinary course, including economics and resources and environment. The economic theory includes three parts: environmental value assessment, property rights and externalities, and pollution control economics. In the department of natural resources and environment theory subcontracting natural resources and ecosystem, sustainable development theory, environment and environmental pollution and environmental policy. (Fig.2)

![Curriculum System of Resource and Environmental Economics](image)

Figure 2. Curriculum System of Resource and Environmental Economics.

The course attribute of "resource and environmental economics" is an interdisciplinary elective course in the cultivation program of graduate students in public relations management, with a total duration of 32 hours. In the teaching, the total class hours are divided into two parts, each with 16 classes, which are respectively applied to the teaching of economic theory and resource environmental theory.

3.2 Teaching Objectives

The objectives of the postgraduate courses are different from those of the undergraduate students. Therefore, in the process of setting teaching objectives, we should focus on cultivating students' following abilities. First, the ability to read and understand books and reports on environmental economics; Second, the ability to observe and analyze the operational characteristics of environmental laws and their relationship with economic laws; Third, data collection and processing capacity; Fourthly, I have the ability to analyze and comprehensively report specific environmental problems, learn how to put forward environmental problems and use economic
theories and methods to analyze problems. In the teaching process, the application is highlighted. Through the environmental economic thoughts and techniques taught in the classroom, the ability of students to analyze and interpret problems seriously is trained.

3.3 Course Design

The blended teaching mode is a comprehensive combination of online and offline teaching, which makes full use of network resources to divide the course learning into three parts before class, during class and after class. The course design is composed of three parts, namely, online course design, offline course design, course assessment method and evaluation standard.

3.3.1 Online Part of Course Design

The online learning part is mainly used for pre-class preview and after-class review discussion. The design, production and use of relevant contents are mainly completed by using network platforms such as youtube and smart tree.

3.3.1.1 Pre-Class

Mainly focuses on the review and consolidation of related theories; Show the logical relationship between the class and the class. Mainly small class teaching video taken by teachers according to choose to suit the present form of the content of the knowledge points, teaching video production can be completed by teachers and students, the video time according to the people's attention to set the best time, generally for 5-10 minutes, in principle, no more than 15 minutes, conforms to the concept of short, suitable for broadcast network terminal and fragmentation learning needs.[2]

This part of online learning requires students to spend 10 to 15 minutes to complete the micro-video learning or reading online materials, and complete relevant assignments according to the pre-class requirements. The total time is about 20 to 30 minutes, not more than 40 minutes in principle.[2]

3.3.1.2 In-Class

Set thinking and discussion topics to guide students to complete knowledge point explanation, case analysis, group demonstration and other activities in groups, and upload the results in real time through the client, so as to facilitate the discussion and evaluation among groups.

At the same time, during the course explanation, students can be encouraged to learn by inserting small test and other links at any time through the client.

3.3.1.3 After-Class

It is mainly used to sort out the key and difficult points in class, answer questions in the course content, discuss after class and arrange homework. Take full advantage of the convenience of the network platform, guide students to further sort out what they have learned in class, and consolidate and deepen the classroom knowledge through online discussion or interactive answering.

3.3.2 Offline Part of Course Design

In the course of using multimedia courseware to explain the course content, the teacher only explains in a few complex knowledge points or principles. The rest of the course content will guide students to complete some knowledge points explanation, case analysis, group discussion, group demonstration and other activities by setting up thinking and discussion topics, cases, etc. Classroom teaching activities are conducted through guided discussions and group presentations.

3.3.3 Course Assessment Methods and Evaluation Standards

As the teaching of the course is completed in the mode of blended course, the assessment of the course should take both online learning and offline learning into consideration.

The course examination is conducted by combining the offline examination and writing paper with the online learning effect evaluation double indexes. As this course is an elective course, the examination is conducted by open-book examination.

The course grade is based on the percentage system, which can be assessed by attendance (5%), online homework and practice (10%), classroom presentation (20%), team cooperation (5%), group evaluation (10%), course paper (30%) and paper (20%).
4. Tracking and Evaluation after Class

It is very important to follow up and feedback after class. In previous teaching activities, questionnaire survey or written feedback is often adopted. However, due to the influence of some subjective factors, it is often difficult to obtain authentic feedback.

Relying on the convenient network platform, the blended course can easily realize real-time data analysis and learning file sorting in after-class tracking and feedback. At the end of the course, teachers can conduct online feedback activities such as anonymous course satisfaction survey and teaching effect evaluation, and continue to open discussion groups to support students' after-class consultation and interaction. At the same time, students' learning conditions can be classified into files, and students' excellent cases, video and discussion data can be accumulated into online course materials for future use.

The blended teaching mode provides students with a space to give full play to their autonomy, which is more in line with the student-centered education concept in the new century. Teachers use information means to carry out refined teaching design, freeing most of the classroom teaching time from teaching knowledge, for guiding group cooperation and exploratory learning. At the same time, teachers also organize rich teaching activities to help students become reflective learners and promote the digestion and absorption of knowledge and proficiency. In particular, the reform of teaching mode in the process of graduate education is more conducive to cultivating students' ability to analyze and solve problems independently.

Acknowledgment

This research was financially supported by Ministry of education postgraduate curriculum construction experimental-Quality course construction of Inner Mongolia University of Technology.

References


